DLA-90-P00107

Surface Versus Air Transportation Analysis (Automatic Downgrade Endeavor for the U.S. Navy, Air Force, and Marine Corps)

OPERATIONS RESEARCH AND ECONOMIC ANALYSIS OFFICE

DEPARTMENT OF DEFENSE

DEFENSE LOGISTICS AGENCY

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FOREWORD

This report documents analysis of the Defense Logistics Agency (DLA) Automatic Downgrade Endeavor. Under this program, the United States Navy, Air Force, and Marine Corps have permitted DLA to automatically downgrade Issue Priority Group/Transportation Priority I and II (IPG/TP I and II) shipments from air to surface transportation modes during a 1-year test period. The Automatic Downgrade Endeavor does not apply to Not Mission Capable Status (NMCS), Special U.S. Navy Project Codes, "999" Required Delivery Date (RDD) Shipments nor any overseas shipments. This project evaluates the initial 6 months of the program for each Service. The analysis determined the total number of IPG/TP I and II shipment downgrades for each Service during the test period, the related processing and transit times for those shipments, the actual surface transportation costs of those shipments, and the associated transportation costs via an air freight carrier. These figures and the calculated cost differential between surface and air modes, which amounted to approximately $16.4 million a year for these Services at existing levels of traffic and current rates, will be used to determine the feasibility of continuing the program. The report recommends that DLA continue with the Automatic Downgrade Endeavor and monitor system performance to determine if the dollar cost savings versus increased shipment times is cost effective in the future.

for Col, USAF
ROGER C. ROY
Assistant Director
Office of Policy and Plans

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EXECUTIVE SUMMARY

The Military Services have permitted the Defense Logistics Agency (DLA) to automatically downgrade Issue Priority Group/Transportation Priority I and II (IPG/TP I and II) shipments from air to surface transportation modes during a 1-year test period. The Automatic Downgrade Endeavor does not apply to Not Mission Capable Status (NMCS), Special U.S. Navy Project Code, or other "999" Required Delivery Date (RDD) Shipments. It also does not apply to any overseas shipments. This project evaluates the initial 6 months of the program covering the periods from 1 February through 31 July 1989 for the U.S. Air Force and Marine Corps and from 1 May through 30 October 1989 for the U.S. Navy. A previous study of U.S. Army downgrades was completed in the Surface Versus Air Transportation Analysis (Automatic Downgrade Endeavor), May 1990 (DLA-90-P90091).

This analysis is conducted to determine the total number of IPG/TP I and II shipment downgrades during the test period, the related processing and transit times for those shipments, the actual surface transportation costs of those shipments, and the associated transportation costs via an air freight carrier. These figures, along with the calculated cost differential between surface and air modes, will be used to determine the feasibility of continuing the program on a permanent basis.

The Automatic Downgrade Endeavor does save the Department of Defense (DoD), based on all Services' downgrades, approximately $20 million a year at existing levels of traffic and current rates. This figure reflects an annual savings of approximately $3.5 million, $9.4 million, $6.6 million, and $0.5 million for the U.S. Army, Navy, Air Force, and Marine Corps respectively, each year. There is a mean increase of approximately 2.5, 2.4, 2.6, and 2.4 days per shipment in total processing/transit time for the U.S. Army, Navy, Air Force, and Marine Corps respectively. This is primarily due to a mean increase of approximately 2.5 days per shipment in transit time with little or no change in processing time.

It is recommended that DLA continue with the Automatic Downgrade Endeavor while monitoring system performance to determine if the dollar cost savings versus increased shipment times is cost effective.

The methodology and analysis used several data sources to compile a data base on shipments during the test period and then performed two separate sets of calculations. The first set of calculations determines the descriptive statistics relating to processing and transportation times for shipments during the test period, while the second set of calculations determines surface and air transportation costs for each shipment and renders the actual cost savings due to the downgrade by Service. Analysis is also conducted using both procedures between the depots and various surface modes of transportation by Service.

I. INTRODUCTION. The Defense Logistics Agency's (DLA) Directorate of Supply Operations, Transportation Division (DLA-OT) requested a transportation cost analysis of the DLA Automatic Downgrade Endeavor for U.S. Army (USA) shipments in February 1989. DLA-OT subsequently requested this office perform the U.S. Army analysis for a 6-month test period conducted from February through July 1989. This analysis was performed in order to provide key information to DLA and U.S. Army officials considering the potential benefits of the program and subsequent continuation of the program.[1] Based on these results, DLA-OT further requested a similar analysis for each Military Service in March 1990. This analysis determines the descriptive statistics surrounding processing and transit times for the program, along with the actual dollar cost savings for the test period by Service. However, this study does not attempt to relate potential trade-offs in time versus dollars whether from the stand-point of initial lag time shifting "pipeline" inventory costs for items or life cycle costs for affected systems.

A. Background.

The U.S. Marine Corps (USMC) previously used air transportation modes for Issue Priority Group/Transportation Priority (IPG/TP) I shipments, while the U.S. Navy (USN) and Air Force (USAF) did so for both IPG/TP I and II shipments. The U.S. Navy, Air Force, and Marine Corps have permitted DLA to automatically downgrade IPG/TP I and II shipments from air to surface modes during a 1-year test period. An analysis based on the initial 6 months of the test for each Service will be used to evaluate the cost and benefits of the program and to assist DLA and the Services in the final decision to continue with the program on a permanent basis.

The Automatic Downgrade Endeavor does not apply to Not Mission Capable Status (NMCS), Special Navy Project Codes, or other "999" Required Delivery Date (RDD) Shipments. It also does not apply to any overseas shipments. This project evaluates the initial 6 months of the program for each Service covering the period from 1 February through 31 July 1989 for the U.S. Air Force and Marine Corps, and 1 May through 30 October 1989 for the U.S. Navy.

B. Purpose. This analysis is conducted to determine the total number of IPG/TP I and II shipment downgrades during the test period, the related processing and transit times for those shipments, the actual surface transportation costs of these shipments, and the associated transportation costs via an air freight carrier by Service. How well these figures conform to established time standards, along with the calculated cost differential between surface and air modes, will be used to determine the feasibility of continuing the program on a permanent basis.

C. Scope.

1. The analysis covers the test period from 1 February through

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1. Defense Logistics Agency, Surface Versus Air Transportation Analysis (Automatic Downgrade Endeavor), May 1990 (DLA-90-P90091).

31 July 1989 for the U.S. Air Force and Marine Corps.

2. The analysis covers the test period from 1 May through 30 October 1989 for the U.S. Navy.

3. The analysis covers only Continental U.S. (CONUS) IPG/TP I and/or I and II shipments which are not NMCS, Special Navy Project Code, or "999" RDD coded.

D. Objectives.

1. Determine the total number of IPG/TP I and II downgrades during the test period for each Service.

2. Determine the statistics for the processing and transit times of the downgraded shipments for each Service.

3. Determine the actual costs of the downgraded shipments during the test period for each Service.

4. Determine the corresponding costs of moving the same shipments via an air freight forwarder or small parcel air carrier during the test period for each Service.

5. Calculate the actual cost differential between air versus surface shipment modes for shipments during the test period for each Service.

6. Compare processing and transit times and any cost savings between the actual Automatic Downgrade Endeavor results and estimated non-downgrade statistics by Service.

II. CONCLUSIONS. The results of the calculations and analysis cover two distinct topics, one being the impact on shipment times and the second being dollar cost savings. A brief explanation along with a tabular compilation for the total of all shipments by Service are provided in the next two sections.

A. Descriptive Statistics for Processing and Transportation.

The total number of downgraded shipments, the number of shipments for which complete processing and transit dates could be identified, and the percent of the data base represented are shown by Service in Table 1 below. The large size of the samples represents a significant statistical basis for calculation of the descriptive statistics. The sample means and variances are assumed to be equivalent to the population means and variances due to the large sample sizes. The results in days based on all shipments are shown in Tables 2 through 4 below. All statistics reflect whole days.

Table 1

FREQUENCIES OF SHIPMENTS BY SERVICE

Service	Downgraded Total	Downgraded Freight	Downgraded w/Dates	% of Total w/Dates	% of Freight w/Dates
USN	168,404	60,726	46,767	27.77	77.01
USAF	187,227	53,161	46,310	24.74	87.11
USMC	6,281	2,732	2,432	38.72	89.00

Table 2

DESCRIPTIVE STATISTICS FOR USN SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Mean	3.089	4.343	7.432
Median	2.000	4.000	7.000
Mode	1.000	3.000	6.000
Std Dev	2.723	2.667	3.407

Table 3

DESCRIPTIVE STATISTICS FOR USAF SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Mean	2.956	4.559	7.514
Median	2.000	5.000	7.000
Mode	1.000	6.000	7.000
Std Dev	2.609	2.373	3.110

Table 4

DESCRIPTIVE STATISTICS FOR USMC SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Mean	3.076	4.349	7.424
Median	2.000	4.000	7.000
Mode	2.000	1.000	6.000
Std Dev	2.734	3.090	3.447

Shipments are categorized by small parcel or freight depending on weight. All shipments totaling 100 pounds or more fall into the freight category. The final data base for each Service, derived from the first quarter of Fiscal Year (FY) 1990 update, used data from multiple sources resulting in the final group of downgraded shipments with usable order, ship, and receipt date information fields. Specific data by Service for the U.S. Navy, Air force, and Marine Corps can be found in Appendices A through C respectively. Small parcel shipments accounted for 64, 72, and 57 percent of the total Service data bases for the U.S. Navy, Air Force, and Marine Corps respectively. Small parcel shipments are not included in the shipments used to calculate time statistics due to the method by which such shipments are manifested. Transit date information is not tracked for small parcels in these three Services. The data bases were examined based on mode of shipment and depot.

It is interesting to note in Appendices A through C that the statistics obtained for freight shipments are nearly identical between depots. Normally small parcels are much easier to pick, pack, ship, and transport than are such freight shipments and the time needed to process small parcels is much less than freight shipments. The published standards provided by the United Parcel Service (UPS), the United States Postal Service (USPS), and Roadway Package Service (RPS) reflect a maximum of 8 days anywhere in CONUS. These small parcel carriers tend to be much faster and more efficient than freight carriers which is why they are so frequently used. Therefore, it is inconceivable that any small parcel carriers would have a mean transit time longer than any freight carrier. Due to small parcel shipping procedures and these facts, time statistics based on inclusion of small parcel carriers are not and cannot be used in this analysis or resultant conclusions. This should not have any adverse effect on the results.

There is no significant difference in transit time between the Services. The U.S. Navy, Air Force, and Marine Corps exhibit similar mean transit times with nearly identical small variances resulting in 95 percent of all U.S. Navy shipments arriving within 13 days. Also, 95 percent of U.S. Air Force shipments and 95 percent of U.S. Marine Corps shipments arrive within 13 days, which meets required time standards.

B. Dollar Cost Savings for the Test Periods. The dollar cost savings for the 6-month test periods are based on the actual surface transportation costs for the downgraded shipments obtained from the Material Release Order/Government Bill of Lading (MRO/GBL) data; as well as, the cost of air freight transportation for all shipments calculated using actual weights, origins, destinations, and FY 1989 rates. This results in actual dollar cost savings and not estimates. Cost and savings figures for all shipments by Service in whole dollars are shown in Tables 5 through 7 below.

Table 5

COST AND SAVINGS FOR USN SHIPMENTS

Category	Total For All Shipments
Surface Cost	$2,584,830
Air Cost	$7,296,729
Cost Savings	$4,711,899
Estimated Annual Savings	$9,424,000

Table 6

COST AND SAVINGS FOR USAF SHIPMENTS

Category	Total For All Shipments
Surface Cost	$1,734,518
Air Cost	$5,025,829
Cost Savings	$3,291,311
Estimated Annual Savings	$6,583,000

Table 7

COST AND SAVINGS FOR USMC SHIPMENTS

Category	Total For All Shipments
Surface Cost	$155,297
Air Cost	$395,588
Cost Savings	$240,291
Estimated Annual Savings	$481,000

C. Benefits. The Automatic Downgrade Endeavor does save the Department of Defense (DOD) approximately $20 million a year (including Army downgrades)[2] at existing levels of traffic and current rates, with a mean increase of approximately 2.5 days per shipment in total processing/transit time excluding small parcel shipments. Savings figures by Service are shown in Table 8 below. All figures are in whole dollars and whole days.

Table 8

COMPILED SERVICE DATA

	USA[3]	USN	USAF	USMC	TOTAL DoD
Cost Savings	$1,724,699	$4,711,899	$3,291,311	$240,291	$9,968,200
Estimated Annual Savings	$3,449,000	$9,424,000	$6,583,000	$481,000	$19,937,000
Mean Time Increase	2.5	2.4	2.6	2.4	2.5

III. RECOMMENDATIONS

- Continue with the Automatic Downgrade Endeavor.
- Monitor system performance to determine if the dollar cost savings versus increased shipment times are cost effective.
- Implement procedures to accurately collect small parcel transit data.

IV. METHODOLOGY

A. General.

The use of life cycle costing techniques for weapon systems and other equipment is one primary method to establish a portion of the cost per unit time for equipment and thereby determine the associated cost of each additional unit of shipping time for an item needed to support or repair that equipment. However, it is evident with the exclusion of NMCS and special RDD requisition

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2. Defense Logistics Agency, Surface Versus Air Transportation Analysis (Automatic Downgrade Endeavor), May 1990 (DLA-90-P90091).

3. Defense Logistics Agency, Surface Versus Air Transportation Analysis (Automatic Downgrade Endeavor), May 1990 (DLA-90-P90091).

shipments that determining potential cost differentials for the value of additional "down time" on affected weapon systems and capital equipment is certainly not applicable in this case. There is some concern about Anticipated NMCS (ANMCS) requests ordered as Priority Designators 02 or 03. These could be downgraded, shipped, and remain intransit while a system becomes NMCS waiting for the item. This cost figure based on a percentage of ANMCS which become NMCS within a certain number of days by Weapon System Designator Code (WESDC) is impossible to determine. There are some common use items for which a WESDC cannot be specifically determined; even if the number based on the percentage of ANMCS which become NMCS within a number of additional days could be determined for that WESDC. For these reasons, the use of "pipeline" life cycle costing techniques cannot be and are not attempted in this analysis. Another costing technique previously used extensively in commercial, and especially retail, operations concerns "pipeline" inventory costs. Inventory costs may take two forms, both of which are of interest to the Department of Defense (DoD), depending on whether the entity concerned is the consignor or consignee. In this case, DLA is the consignor and the respective Services are the consignees. A shift of just a few days in Order-Ship-Time (OST) has little relative effect on DLA inventory. DLA stocked items have an on-hand quantity usually in the hundreds of Days of Supply (DOS) with 3 to 36 month procurement cycles. No change in requisition receipt and processing has occurred at the depots affecting throughput. The change of a couple of days in transit time for downgraded shipments has no real effect on the procurement cycle. Payment and accounting cycles between DLA and the Services operate on a 2 to 4 week basis. The one time shift or lag in payments from the Services to DLA due to initiation of the program has little impact on the payment cycle and practically no impact on even longer procurement cycles.

The Services also need to be concerned about inventory costs to them as consignees. However, there also appears to be little, if any, impact on the Services since NMCS and special RDD shipments are not downgraded. This allows critical items and items for which stockage levels fall below the safety level (SL) to be reordered and supplied just as before the downgrade. There will be some affect on the Reorder Point (ROP) and SL for some items due to increased OST. However, since the Services also stock large quantities of items to maintain their DOS, which generally run from 45 into hundreds of DOS, an increase of a couple of days in OST will reflect little change in total quantities stocked for the vast majority of items.

The basic construct of "pipeline" inventory costs is not extremely applicable to most items handled by DLA and the Services due to the large quantities of stock maintained by DoD in fixed locations worldwide. The types of items allowed for downgrade are controlled in a bulk wholesale type system at both ends of the pipeline with high SLs and ROPs in general. The procurement cycle is also quite long for most items which also drives large stockage levels in terms of the DOS. Small shifts in OST have little or no relative effect on the overall system. Any attempt to quantify such an effect would have to be done by item based on the demand history, new OST, weight, cube, and storage/location costs for each location where the item is maintained. Such an analysis would be impossible without extensive coordination and data collection between DLA and the Services if it is posssible at all. It is questionable if such a study would even be cost effective in light of the minimal

overall impact such small shifts in OST would have. Therefore, any attempt to incorporate such a technique is not deemed justified or within the scope of this analysis and will not be conducted.

B. Establish the Data Base.

1. The study utilizes Depot Material Release Order (DMRO) files generated under the Mechanization of Warehousing and Shipment Processing (MOWASP) system for the six DLA Depots. These files were consolidated, along with Military Standard Requisitioning and Issue Procedure(MILSTRIP) source data, into a Combined Material Release Order (CMRO) file for each quarter of FY 1989. The appropriate set of shipments were then selected based on:

a. Depot or Consignor code for the six DLA depots.

b. Department of Defense Activity Address Codes beginning with "N" or "R" for the USN; "E", "F, or "J" for the USAF; and "M" or "L" for the USMC.

c. Transportation Mode codes A,B,D,I,K,L,M,S,5, or 9 for methods of surface transportation.

d. Issue Priority Designator codes 01, 02, or 03 for IPG/TP I used by the USMC and Issue Priority Designator codes 01 through 08 for IPG/TP's I and II used by the USN and USAF.

e. Required Delivery Date (RDD) code not "999" or NMCS.

f. Destination codes for CONUS activities only.

g. No special Navy Project Codes (see Appendix D).

2. The study utilizes Intransit Data Card (IDC) files based on the Military Supply and Transportation Evaluation Procedures (MILSTEP) for FY 1989 to obtain additional information on transportation times. These data are added using a Transportation Control Number (TCN) matching routine.

3. The study structures three complete data files based on Service to include the following variables for use:

a. Depot or Consignor.

b. Transportation mode.

c. Delivery state.

d. Ship-to-address.

e. Transportation Control Number.

f. Total weight.

g. Total cube.

h. Transportation cost.

i. Offer date.

j. Ship date.

k. TK4/receipt date.

4. The study develops two primary data input files for each Service based on data available for the shipments. One file is for calculation of the descriptive statistics and includes only those shipments for which complete date fields are included. The second file consists of the entire shipment data set which is used to compute actual transportation costs.

5. There are also four additional data input files which are manually entered for the current (FY 1989) air freight rates. These are organized as to shipments less than 100 pounds and greater than or equal to 100 pounds, depot, and delivery region. These data were obtained via a data call to all depots from DLA-OT. A fifth additional file is also developed for each Service in order to identify activities and shipments destined to the New York and Los Angeles Enhanced DLA Distribution System (EDDS) regions.

C. Calculation of Descriptive Statistics.

1. One program, using the Model 204 Data Base Management System, determines the total number of downgraded shipments by conducting a frequency count on the data base and then performs the same procedure for each depot by Service.

2. Another program, using the SPSS-X statistical package, calculates the mean, median, standard deviation, and other statistics on the processing time, transit time, and total shipment time of all downgraded shipments for each Service. This program also performs the same procedure for each depot, surface mode, and mode by depot by Service. These calculations are based on only those instances where complete date information is available.

D. Calculating Dollar Cost Savings for the Test Period. A FORTRAN based program was developed to calculate actual surface transportation costs for each Service.

1. It extracts the given transportation cost for each shipment from the data base and calculates any missing costs for surface transportation based on the weight, consignor, and ship-to-address using FY 1989 freight rates.

2. It then sums the total cost of surface transportation for all shipments and performs the same procedure for each depot.

3. It next calculates the air freight cost for each shipment in the database based on the weight, consignor, and delivery state using FY 1989 air freight rates obtained via the data call to all depots. These rates are read into the program from input files.

4. It also sums the total cost of air transportation for all shipments and performs the same procedure for each depot.

5. Finally, it calculates the transportation cost differentials by subtracting the actual cost of surface transportation from the calculated air transportation cost for all shipments and by each depot.

V. ANALYSIS

The analysis of this data and resulting calculations is quite straight forward. The statistics program developed using the SPSS-X statistical package determined the descriptive statistics for each Service's test period. The sample means and variances are assumed to be equivalent to the population means and variances due to the extremely large sample sizes; therefore, construction of confidence intervals and further testing are not necessary. Complete results of these programs are shown in Appendices A through C. Tables 2 through 4 previously showed totals by Service.

An additional data set was analyzed using the same program to determine the descriptive statistics for air shipments during the second and third quarters of FY 1989. A data set of 4372 shipments for all three Services was extracted which contained a sample of 3662 shipments with complete date information fields. Complete results of this analysis are located at Appendix E. These results are used to compare changes in time statistics between the downgraded shipments and air shipments at the beginning of the test period.

The complete data sets were utilized in the FORTRAN program to determine a number of facts associated with the Automatic Downgrade Endeavor. The number of shipments, surface transportation costs, calculated air transportation costs, and any savings are provided in Tables 1 and 5 through 8 shown previously which give data by Service. Complete results by Service and between depots can be found in Appendices A through C.

The numbers of shipments and dollar costs in the air freight categories were compared to those obtained from the Depot Traffic Analysis[4]. The numbers are comparable to figures obtained for FYs 1987 and 1988. These savings, combined with those mentioned in the previous U.S. Army analysis, result in a $19.9 million savings annually for DoD.

It should be noted that some included shipments passed through the New York and Los Angeles Enhanced DLA Distribution System (EDDS) sites. There were a

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4. Defense Logistics Agency, Depot Traffic Analysis, November 1989 (DLA-90-C81037).

5. Defense Logistics Agency, Surface Versus Air Transportation Analysis (Automatic Downgrade Endeavor), May 1990 (DLA-90-P90091).

total of 7163 shipments through EDDS with 3219 passing through New York and 3944 through Los Angeles during the 6-month test periods for all Services. This represents only 1.98 percent of all downgraded shipments for these three Services. The break-down by Service is shown in Table 9 below.

Table 9

EDDS SHIPMENTS BY SERVICE

	USN	USAF	USMC
EDDS SHIPMENTS	5190	1427	546
LA SHIPMENTS	2619	781	544
NY SHIPMENTS	2571	646	2
% OF TOTAL SHIPMENTS	3.1	0.8	8.7

Actual transportation cost savings have been determined. Processing time for requisitions reflect no significant change due to the program as compared to previous periods (see Appendix E). Transit and total shipment times have changed and were previously based on "Second-Day Air Service" or SAS for small parcel air shipments less than 100 pounds and standard air delivery times for other shipments. Examination of the current statistics based on MILSTEP data shows an increase in mean transit time from 1.95 days (see Appendix E) to 4.3, 4.6, and 4.4 days for the U.S. Navy, Air Force, and Marine Corps respectively. This is an overall increase of about 2.5 days due to downgrading. The standard deviation of all transit times was moderate at 2.7, 2.4, and 3.1 days respectively for downgraded shipments. There appeared to be no significant variation in time statistics due to Service or Service by depot or location. No further analysis was conducted between Services based on these results .

Examination of the total time statistics, in addition to transit time statistics, shows that the distributions of transit times and total shipment times for each of the Services are nearly normal distributions with a small positive skewness. One major result based on these normal distributions with given means and standard deviations is that the time frame in which 95 percent of each Service's shipments are delivered can be easily determined. Table 10 below shows each Service's delivery time frames and percent of total shipments delivered within specified numbers of days.

Table 10

SHIPMENT DELIVERY TIME FRAMES BY SERVICE

	Mean in days	Std Dev in days	+1.0 Std Dev (84%) in days	+1.645 Std Dev (95%) in days	+2.0 Std Dev (98%) in days
USN	7.432	3.407	10.84	13.04	14.25
USAF	7.514	3.110	10.62	12.63	13.73
USMC	7.424	3.447	10.87	13.09	14.32

The cumulative 95 percent standard lies at 1.645 standard deviations to the right or in a positive direction from the mean. It is interesting to note that despite the 15 day standard in effect, all Services still receive 95 percent of the downgraded shipments within 13 days due to the low means and small variances in their shipment transit and total time distributions.

APPENDIX A

U.S. Navy Downgrade Statistics

A. Background.

The U.S. Navy has permitted DLA to automatically downgrade Issue Priority Group/Transportation Priority I and II (IPG/TP I and II) shipments from air to surface transportation modes during a 1-year test period. An analysis based on the initial 6 months of the test will be used to evaluate the cost and benefits of the program and to assist DLA, DoD, and the U.S. Navy in the final decision to continue with the program on a permanent basis.

B. Scope.

1. The analysis covers the test period from 1 May through 30 October 1989.

2. The analysis covers only Continental U.S. (CONUS) IPG/TP I and II shipments which are not NMCS, Special Project Code, or "999" RDD coded.

C. Analysis.

The final data base, derived from the first quarter, FY 1990 update, used data from multiple sources resulting in the final 168,404 shipments with 46,767 usable date fields. Small parcel shipments accounted for 107,678 of the 168,404 shipments or 64.0 percent of the total data base. Small parcel shipments could not be used to calculate time statistics since the process of manifesting such shipments does not allow for complete date information to be collected. The remaining 60,726 freight shipments contained 46,767 usable date information fields. This resulted in a 77.0 percent sample, based on freight shipments, of the final data base which was used to calculate time statistics. The data base was examined based on depot to insure there were no significant variations within the system. The statistics program developed using the SPSS-X statistical package determined the descriptive statistics for the test period. The sample means and variances are assumed to be equivalent to the population means and variances due to the extremely large sample size; therefore, construction of confidence intervals and further testing are not necessary. The results of this program for the U.S. Navy are shown in Tables A-1 through A-7 below which give statistics for all U.S. Navy shipments and by depot. All statistics reflect whole days.

Table A-1

DESCRIPTIVE STATISTICS FOR ALL FREIGHT SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Freq	46767	46767	46767
Mean	3.089	4.343	7.432
Median	2.000	4.000	7.000
Mode	1.000	3.000	6.000
Std Dev	2.723	2.667	3.407
Skewness	2.708	1.058	1.328
Kurtosis	12.046	2.727	4.380

There are some variations in time statistics due to location or depot after comparing Table A-1 results with Tables A-2 through A-7.

Table A-2

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM MECHANICSBURG

Time Stats	Process Time	Transit Time	Total Time
Freq	13693	13693	13693
Mean	3.282	3.960	7.242
Median	2.000	3.000	7.000
Mode	1.000	3.000	5.000
Std Dev	3.136	2.304	3.554
Skewness	3.087	0.940	1.685
Kurtosis	14.215	1.548	6.423

Table A-3

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM TRACY

Time Stats	Process Time	Transit Time	Total Time
Freq	7333	7333	7333
Mean	4.603	2.988	7.591
Median	4.000	2.000	7.000
Mode	4.000	1.000	7.000
Std Dev	2.883	2.699	3.705
Skewness	1.242	2.181	0.798
Kurtosis	2.873	7.952	1.611

Table A-4

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM COLUMBUS

Time Stats	Process Time	Transit Time	Total Time
Freq	3290	3290	3290
Mean	2.430	5.272	7.702
Median	2.000	5.000	7.000
Mode	1.000	4.000	6.000
Std Dev	2.499	2.105	3.247
Skewness	3.330	0.391	1.773
Kurtosis	14.484	0.532	5.915

Table A-5

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM MEMPHIS

Time Stats	Process Time	Transit Time	Total Time
Freq	7750	7750	7750
Mean	2.808	5.849	8.657
Median	2.000	6.000	8.000
Mode	1.000	6.000	8.000
Std Dev	2.336	2.967	3.353
Skewness	2.604	0.927	1.184
Kurtosis	10.294	3.249	3.711

Table A-6

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM RICHMOND

Time Stats	Process Time	Transit Time	Total Time
Freq	11564	11564	11564
Mean	2.487	4.336	6.822
Median	2.000	4.000	6.000
Mode	1.000	5.000	5.000
Std Dev	2.192	2.421	2.999
Skewness	3.373	0.749	1.378
Kurtosis	18.699	1.260	4.930

Table A-7

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM OGDEN

Time Stats	Process Time	Transit Time	Total Time
Freq	3137	3137	3137
Mean	2.312	4.509	6.821
Median	2.000	4.000	6.000
Mode	1.000	4.000	5.000
Std Dev	1.517	2.527	2.856
Skewness	1.234	1.522	1.043
Kurtosis	4.009	3.732	2.271

Processing time for requisitions reflect no significant change due to the program as compared to FYs 1987 and 1988. Transit and total shipment times have changed and were previously based on "Second-Day Air Service" or SAS for small parcel air shipments less than 100 pounds and standard air delivery times for other shipments. Examination of the current statistics based on MILSTEP data shows an increase in mean transit time from 1.95 days to 4.34 days or an increase of about 2.4 days due to downgrading. The standard deviation of all transit times was moderate at about 2.7 days for downgraded shipments. There appeared to be some variation due to depot or location due to the distances of inland depots to Navy facilities; but, further analysis was not conducted between depots.

The complete U.S. Navy data set was utilized in the FORTRAN program to determine a number of facts associated with the Automatic Downgrade Endeavor. The number of shipments, surface transportation costs, calculated air transportation costs, and any savings are provided in Tables 1 and 5 through 8 shown previously and Table A-8 below which gives U.S Navy data by depot. Cost and savings figures are in whole dollars.

Table A-8

COST AND SAVINGS FOR USN SHIPMENTS BY DEPOT

	MECHANICSBURG	TRACY	COLUMBUS	MEMPHIS	RICHMOND	OGDEN
Number Shipped	27,185	31,066	31,074	14,129	60,145	4,805
Surface Cost	525,561	587,081	221,710	528,939	566,849	154,690
Air Cost	1,494,520	1,356,340	761,910	1,314,741	1,853,332	515,886
Savings	968,959	769,259	540,200	785,802	1,286,483	361,196

APPENDIX B

U.S. Air Force Downgrade Statistics

A. Background.

The U.S. Air Force has permitted DLA to automatically downgrade Issue Priority Group/Transportation Priority I and II (IPG/TP I and II) shipments from air to surface transportation modes during a 1-year test period. An analysis based on the initial 6 months of the test will be used to evaluate the cost and benefits of the program and to assist DLA, DoD, and the U.S. Air Force in the final decision to continue with the program on a permanent basis.

B. Scope.

1. The analysis covers the test period from 1 February through 31 July 1989.

2. The analysis covers only Continental U.S. (CONUS) IPG/TP I and II shipments which are not NMCS or "999" RDD coded.

C. Analysis.

The final data base, derived from the first quarter, FY 1990 update, used data from multiple sources resulting in the final 187,227 shipments with 46,310 usable date fields. Small parcel shipments accounted for 134,066 of the 187,227 shipments or 71.6 percent of the total data base. Small parcel shipments could not be used to calculate time statistics since the process of manifesting such shipments does not allow for complete date information to be collected. The remaining 53,161 freight shipments contained 46,310 usable date information fields. This resulted in an 87.1 percent sample, based on freight shipments, of the final data base which was used to calculate time statistics. The data base was examined based on depot to insure there were no significant variations within the system. The statistics program developed using the SPSS-X statistical package determined the descriptive statistics for the test period. The sample means and variances are assumed to be equivalent to the population means and variances due to the extremely large sample size; therefore, construction of confidence intervals and further testing are not necessary. The results of this program for the U.S. Air Force are shown in Tables through B-1 through B-7 below which give statistics for all U.S. Air Force shipments and by depot. All statistics reflect whole days.

Table B-1

DESCRIPTIVE STATISTICS FOR ALL FREIGHT SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Freq	46310	46310	46310
Mean	2.956	4.559	7.514
Median	2.000	5.000	7.000
Mode	1.000	6.000	7.000
Std Dev	2.609	2.373	3.110
Skewness	2.477	0.562	1.161
Kurtosis	10.087	2.916	4.983

There are no significant variations in any time statistics due to location or depot after comparing Table B-1 results with Tables B-2 through B-7.

Table B-2

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM MECHANICSBURG

Time Stats	Process Time	Transit Time	Total Time
Freq	12351	12351	12351
Mean	2.714	4.993	7.707
Median	2.000	6.000	8.000
Mode	2.000	6.000	8.000
Std Dev	2.399	2.076	3.310
Skewness	4.209	-0.437	1.354
Kurtosis	28.593	1.563	7.754

Table B-3

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM TRACY

Time Stats	Process Time	Transit Time	Total Time
Freq	5536	5536	5536
Mean	3.574	3.660	7.234
Median	4.000	3.000	7.000
Mode	4.000	1.000	8.000
Std Dev	2.208	2.664	3.555
Skewness	1.389	1.011	0.516
Kurtosis	5.823	1.364	0.424

Table B-4

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM COLUMBUS

Time Stats	Process Time	Transit Time	Total Time
Freq	1645	1645	1645
Mean	2.134	4.925	7.059
Median	1.000	5.000	6.000
Mode	1.000	4.000	6.000
Std Dev	2.269	2.235	3.104
Skewness	4.122	0.489	1.567
Kurtosis	24.481	1.152	5.285

Table B-5

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM MEMPHIS

Time Stats	Process Time	Transit Time	Total Time
Freq	11856	11856	11856
Mean	2.539	5.069	7.608
Median	2.000	5.000	7.000
Mode	1.000	4.000	7.000
Std Dev	1.974	2.458	2.886
Skewness	2.283	0.948	1.086
Kurtosis	9.958	3.584	3.119

Table B-6

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM RICHMOND

Time Stats	Process Time	Transit Time	Total Time
Freq	5162	5162	5162
Mean	3.154	4.777	7.931
Median	2.000	5.000	7.000
Mode	1.000	5.000	7.000
Std Dev	2.810	2.189	3.054
Skewness	2.751	0.658	1.664
Kurtosis	11.716	4.640	7.540

Table B-7

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM OGDEN

Time Stats	Process Time	Transit Time	Total Time
Freq	9760	9760	9760
Mean	3.451	3.721	7.172
Median	2.000	4.000	7.000
Mode	1.000	1.000	6.000
Std Dev	3.406	2.185	2.802
Skewness	1.355	1.031	1.138
Kurtosis	0.976	7.609	3.728

Processing time for requisitions reflect no significant change due to the program as compared to FYs 1987 and 1988. Transit and total shipment times have changed and were previously based on "Second-Day Air Service" or SAS for small parcel air shipments less than 100 pounds and standard air delivery times for other shipments. Examination of the current statistics based on MILSTEP data shows an increase in mean transit time from 1.95 days to 4.6 days or an increase of about 2.6 days due to downgrading. The standard deviation of all transit times was moderate at about 2.4 days for downgraded shipments. There appeared to be no significant variation due to depot or location and no further analysis was conducted between depots.

The complete U.S. Air Force data set was utilized in the FORTRAN program to determine a number of facts associated with the Automatic Downgrade Endeavor. The number of shipments, surface transportation costs, calculated air transportation costs, and any savings are provided in Tables 1 and 5 through 8 shown previously and Table B-8 below which gives U.S. Air Force data by depot. Cost and savings figures are whole dollars.

Table B-8

COST AND SAVINGS FOR USAF SHIPMENTS BY DEPOT

	MECHANICSBURG	TRACY	COLUMBUS	MEMPHIS	RICHMOND	OGDEN
Number Shipped	31,697	44,474	20,982	39,716	33,315	17,043
Surface Cost	289,665	318,999	160,486	501,574	247,165	216,629
Air Cost	1,019,508	980,938	375,637	1,476,154	607,966	565,626
Savings	729,843	661,939	215,151	974,580	360,801	348,997

APPENDIX C

U.S. Marine Corps Downgrade Statistics

A. Background.

The U.S. Marine Corps has permitted DLA to automatically downgrade Issue Priority Group/Transportation Priority I (IPG/TP I) shipments from air to surface transportation modes during a 1 year test period. An analysis based on the initial 6 months of the test will be used to evaluate the cost and benefits of the program and to assist DLA, DoD, and the U.S. Marine Corps in the final decision to continue with the program on a permanent basis.

B. Scope.

1. The analysis covers the test period from 1 February through 31 July 1989.

2. The analysis covers only Continental U.S. (CONUS) IPG/TP I shipments which are not NMCS or "999" RDD coded.

C. Analysis.

The final data base, derived from the first quarter, FY 1990 update, used data from multiple sources resulting in the final 6,281 shipments with 2,432 usable date fields. Small parcel shipments accounted for 3,549 of the 6,281 shipments or 56.5 percent of the total data base. Small parcel shipments could not be used to calculate time statistics since the process of manifesting such shipments does not allow for complete date information to be collected. The remaining 2,732 freight shipments contained 2,432 usable date information fields. This resulted in an 89.0 percent sample, based on freight shipments, of the final data base which was used to calculate time statistics. The data base was examined based on depot to insure there were no significant variations within the system. The statistics program developed using the SPSS-X statistical package determined the descriptive statistics for the test period. The sample means and variances are assumed to be equivalent to the population means and variances due to the extremely large sample size; therefore, construction of confidence intervals and further testing are not necessary. The results of this program for the U.S. Marine Corps are shown in Tables C-1 through C-7 below which give statistics for all U.S. Marine Corps shipments and by depot. All statistics reflect whole days.

Table C-1

DESCRIPTIVE STATISTICS FOR ALL FREIGHT SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Freq	2432	2432	2432
Mean	3.076	4.349	7.424
Median	2.000	4.000	7.000
Mode	2.000	1.000	6.000
Std Dev	2.734	3.090	3.447
Skewness	2.446	1.076	1.088
Kurtosis	9.520	2.608	3.731

There are some variations in time statistics due to location or depot after comparing Table C-1 results with Tables C-2 through C-7.

Table C-2

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM MECHANICSBURG

Time Stats	Process Time	Transit Time	Total Time
Freq	332	332	332
Mean	2.711	5.837	8.548
Median	2.000	6.000	9.000
Mode	2.000	8.000	10.000
Std Dev	1.951	2.098	2.687
Skewness	4.587	-0.350	0.899
Kurtosis	42.823	-1.442	5.973

Table C-3

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM TRACY

Time Stats	Process Time	Transit Time	Total Time
Freq	766	766	766
Mean	4.513	1.634	6.148
Median	4.000	1.000	5.000
Mode	2.000	1.000	3.000
Std Dev	3.506	1.572	3.594
Skewness	1.261	3.188	1.074
Kurtosis	1.908	11.587	1.499

Table C-4

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM COLUMBUS

Time Stats	Process Time	Transit Time	Total Time
Freq	96	96	96
Mean	1.896	6.469	8.365
Median	1.500	7.000	9.000
Mode	1.000	8.000	9.000
Std Dev	1.349	1.824	2.493
Skewness	2.530	0.360	2.234
Kurtosis	8.538	2.175	11.378

Table C-5

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM MEMPHIS

Time Stats	Process Time	Transit Time	Total Time
Freq	498	498	498
Mean	2.408	6.371	8.779
Median	2.000	6.000	8.000
Mode	1.000	4.000	7.000
Std Dev	1.541	3.554	3.531
Skewness	1.522	1.610	1.240
Kurtosis	5.316	4.376	3.045

Table C-6

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM RICHMOND

Time Stats	Process Time	Transit Time	Total Time
Freq	314	314	314
Mean	3.013	5.818	8.831
Median	2.000	6.000	9.000
Mode	2.000	5.000	7.000
Std Dev	2.862	2.679	3.265
Skewness	3.631	-0.353	2.125
Kurtosis	20.543	-0.872	13.561

Table C-7

DESCRIPTIVE STATISTICS FOR FREIGHT SHIPMENTS FROM OGDEN

Time Stats	Process Time	Transit Time	Total Time
Freq	426	426	426
Mean	1.869	4.143	6.012
Median	2.000	4.000	6.000
Mode	1.000	3.000	6.000
Std Dev	1.519	1.869	2.352
Skewness	3.736	1.043	1.846
Kurtosis	37.183	2.397	10.012

Processing time for requisitions reflect no significant change due to the program as compared to FYs 1987 and 1988. Transit and total shipment times have changed and were previously based on "Second-Day Air Service" or SAS for small parcel air shipments less than 100 pounds and standard air delivery times for other shipments. Examination of the current statistics based on MILSTEP data shows an increase in mean transit time from 1.95 days to 4.35 days or an increase of about 2.4 days due to downgrading. The standard deviation of all transit times was moderate at about 3.1 days for downgraded shipments. There appeared to be no significant variation due to depot or location and no further analysis was conducted between depots.

The complete U.S. Marine Corps data set was utilized in the FORTRAN program to determine a number of facts associated with the Automatic Downgrade Endeavor. The number of shipments, surface transportation costs, calculated air transportation costs, and any savings are provided in Tables 1 and 5 through 8 shown previously and Table C-8 below which gives U.S. Marine Corps data by depot. Cost and savings figures are whole dollars.

Table C-8

COST AND SAVINGS FOR USMC SHIPMENTS BY DEPOT

	MECHANICSBURG	TRACY	COLUMBUS	MEMPHIS	RICHMOND	OGDEN
Number Shipped	602	2,424	688	884	933	750
Surface Cost	22,860	61,873	7,018	25,124	21,501	16,921
Air Cost	56,918	97,503	28,099	87,460	61,149	64,459
Savings	34,058	35,630	21,081	62,336	39,648	47,538

APPENDIX D

Special Project Codes

NAVY PROJECT CODES

CODE	NAME
707	Tiger Tom - (COMNAVAIRPAC)
755	Replenishment of LAMPS MK-3 SU-60B Pack-up Kits
757	Bobcat - PMCS (COMNAVAIRLANT)
AKO	NOT PROVIDED
AK1	Aircraft - Repair - Work Stoppage
AK7	Aircraft - Repair - Capability Impaired
BK1	Aircraft - Maintenance - Work Stop
LK7	Oceanographic Units - Repair - Capability Impaired
ZA9	Anticipated NMCS - 15 Days
ZC8	Aircraft Piece/Part Requirement
ZF7	Broad Arrow
ZI5	TACAMO Stock Replenishment
ZI6	TAMAMO Secondary Systems
ZI7	TAMAMO Aircraft PMCS
ZI8	TAMAMO Work Stoppage/AWP
ZI9	TAMAMO Pack-up/PEB/MRI
ZK3	Aircraft Flight/Survival Equipment
ZM5	LAMPS Work Stoppage
ZQ3	Inflight Refueling Stores
ZV6	HiPri SSN Requirements
3AT	TACAMO
733	Non-Aviation ANMCS REQNS of Atlantic Fleet Ships, except FBM
743	Non-Aviation ANMCS REQNS of Pacific Fleet Ships, except FBM

APPENDIX E

Air Shipment Statistics

A. Background.

The Services permitted DLA to automatically downgrade most Issue Priority Group/Transportation Priority I (IPG/TP I) shipments from air to surface transportation modes during a 1 year test period. An analysis of existing air shipments based on the middle 6 months of FY 1989 were used to evaluate the time statistics for shipments prior to onset of the Automatic Downgrade Endeavor Program and to assist DLA, DoD, and the Services in the final evaluation of program.

B. Scope.

1. The analysis covers the period from 1 January through 30 June 1989.

2. The analysis covers only Continental U.S. (CONUS) IPG/TP I shipments for the U.S. Navy, Air Force, and Marine Corps, which were shipped via mode "T" transportation, Air Freight.

C. Analysis.

The final data base, derived from the second and third quarters, FY 1990 update, used data from multiple sources resulting in the final 4,372 shipments with 3,662 usable date fields. This resulted in an 83.8 percent sample, based on air freight shipments, of the data base used to calculate air shipment time statistics. The data base was examined based on depot to insure there were no significant variations within the system. The statistics program developed using the SPSS-X statistical package determined the descriptive statistics for the test period. The sample means and variances are assumed to be equivalent to the population means and variances due to the large sample size; therefore, construction of confidence intervals and further testing are not necessary. The results of this program for all Services are shown in Tables E-1 through E-7 below which give statistics by total and depot. All statistics reflect whole days.

Table E-1

DESCRIPTIVE STATISTICS FOR ALL AIR FREIGHT SHIPMENTS

Time Stats	Process Time	Transit Time	Total Time
Freq	3662	3662	3662
Mean	0.623	1.946	2.569
Median	0.000	2.000	2.000
Mode	0.000	2.000	2.000
Std Dev	1.068	0.658	1.232
Skewness	6.809	0.794	4.231
Kurtosis	16.099	4.239	5.703

There are some variations in time statistics due to location or depot after comparing Table E-1 results with Tables E-2 through E-7. This is primarily due to varying modes of operation at depots. Some use overnight air services for all shipments, since there was no difference in the rates for their carrier.

Table E-2

DESCRIPTIVE STATISTICS FOR AIR FREIGHT SHIPMENTS FROM MECHANICSBURG

Time Stats	Process Time	Transit Time	Total Time
Freq	32	32	32
Mean	0.813	0.969	1.781
Median	1.000	1.000	2.000
Mode	1.000	1.000	2.000
Std Dev	0.780	0.177	0.832

Table E-3

DESCRIPTIVE STATISTICS FOR AIR FREIGHT SHIPMENTS FROM TRACY

Time Stats	Process Time	Transit Time	Total Time
Freq	2.043	2.043	2.043
Mean	0.441	1.988	2.429
Median	0.000	2.000	2.000
Mode	0.910	0.250	0.924
Std Dev	0.910	0.250	0.924

Table E-4

DESCRIPTIVE STATISTICS FOR AIR FREIGHT SHIPMENTS FROM COLUMBUS

Time Stats	Process Time	Transit Time	Total Time
Freq	665	665	665
Mean	1.032	1.881	2.913
Median	1.000	2.000	3.000
Mode	1.000	2.000	2.000
Std Dev	1.246	1.032	1.659

Table E-5

DESCRIPTIVE STATISTICS FOR AIR FREIGHT SHIPMENTS FROM MEMPHIS

Time Stats	Process Time	Transit Time	Total Time
Freq	442	442	442
Mean	0.810	1.466	2.276
Median	1.000	1.000	2.000
Mode	1.000	1.000	2.000
Std Dev	0.841	0.646	1.186

Table E-6

DESCRIPTIVE STATISTICS FOR AIR FREIGHT SHIPMENTS FROM RICHMOND

Time Stats	Process Time	Transit Time	Total Time
Freq	74	74	74
Mean	1.527	1.635	3.162
Median	1.000	2.000	3.000
Mode	1.000	2.000	3.000
Std Dev	3.093	0.959	3.101

Table E-7

DESCRIPTIVE STATISTICS FOR AIR FREIGHT SHIPMENTS FROM OGDEN

Time Stats	Process Time	Transit Time	Total Time
Freq	406	406	406
Mean	0.485	2.495	2.980
Median	0.000	2.000	3.000
Mode	0.000	2.000	3.000
Std Dev	0.635	0.753	0.958

Transit times based on "Second-Day Air Service" or SAS for air delivered shipments reflect current statistics, based on MILSTEP data, of mean transit time at 1.95 days with total times of 2.6 days OST. The standard deviation of air transit times was low at 0.8 days. The standard deviation for total times was also low at 1.2 days. There were small variations due to depot or location. However, the variation between the depots was small and consistent throughout the analysis between depots.

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13. ABSTRACT *(Maximum 200 words)*

THIS IS AN ANALYSIS OF THE DEFENSE LOGISTICS AGENCY (DLA) AUTOMATIC DOWNGRADE ENDEAVOR. UNDER THIS PROGRAM, THE UNITED STATES NAVY, AIR FORCE, AND MARINE CORPS HAVE PERMITTED DLA TO AUTOMATICALLY DOWNGRADE ISSUE PRIORITY GROUP/TRANSPORTATION PRIORITY I AND II (IPG/TP I AND II) SHIPMENTS FROM AIR TO SURFACE TRANSPORTATION MODES DURING A 1-YEAR TEST PERIOD. THIS PROJECT EVALUATES THE INITIAL 6 MONTHS OF THE PROGRAM FOR EACH SERVICE. THE ANALYSIS DETERMINED THE TOTAL NUMBER OF IPG/TP I AND II SHIPMENT DOWNGRADES FOR EACH SERVICE DURING THE TEST PERIOD, THE RELATED PROCESSING AND TRANSIT TIMES FOR THOSE SHIPMENTS, THE ACTUAL SURFACE TRANSPORTATION COSTS OF THOSE SHIPMENTS, AND THE ASSOCIATED TRANSPORTATION COSTS VIA AN AIR FREIGHT CARRIER. THESE FIGURES AND THE CALCULATED COST DIFFERENTIAL BETWEEN SURFACE AND AIR MODES, WHICH AMOUNTED TO APPROXIMATELY $16.4 MILLION A YEAR FOR THESE SERVICES AT EXISTING LEVELS OF TRAFFIC AND CURRENT RATES, WILL BE USED TO DETERMINE THE FEASIBILITY OF CONTINUING THE PROGRAM. IT IS RECOMMENDED THAT DLA CONTINUE WITH THE AUTOMATIC DOWNGRADE ENDEAVOR AND MONITOR SYSTEM PERFORMANCE TO DETERMINE IF THE DOLLAR COST SAVINGS VERSUS INCREASED SHIPMENT TIMES IS COST EFFECTIVE IN THE FUTURE.

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